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**LISTS OF SPECIES**

# Fish, Sorocaba river sub-basin, state of São Paulo, Brazil.

Welber Senteio Smith [1]
Miguel Petrere Jr. [2]
Valter Barrella [3]

[1] *Instituto Manchester Paulista de Ensino Superior (IMAPES) / Universidade Paulista (UNIP).*
*Rua Antonio Adade 67, ap. 2. CEP 18048-020. Sorocaba, SP, Brazil. E-mail:* welber_smith@uol.com.br

[2] *Universidade Estadual Paulista (UNESP), Departamento de Ecologia.*
*Caixa Postal 199. CEP 13506-900. Rio Claro, SP, Brazil.*

[3] *Pontifícia Universidade Católica de São Paulo (PUCSP), Campus Sorocaba.*
*Praça José Ermírio de Moraes 290. CEP 18030-230. Sorocaba, SP, Brazil.*

**Abstract:** In this paper we present a list of the fish fauna of Sorocaba river sub-basin. Fish were caught with gillnets, sieves and *puçás*, a sort of funnel net. We listed 71 species, distributed in 7 orders, 22 families and 50 genera. Characiformes are represented by 39 species, Siluriformes 21, Perciformes 4, Gymnotiformes 3, Cyprinodontiformes 2, and Synbranchiformes and Cypriniformes by a single species each. Five species are alien. Nine species remain as an indefinite taxonomical status.

## Introduction

Aquatic ecosystems have been impacted due to human activities for centuries (Vari and Malabarba 1998). In the Sorocaba river sub-basin the impact is due to effluent release in the water body and massive deforestation of the original riparian forest (Smith 2003). Under such interferences the fish fauna is impoverished and some species main even disappear before being described. So the survey and description of the fish fauna is the first step for future conservation measures (Smith et al. 1997).

Reis et al. (2003) says that CLOFFSCA recognizes 4,475 valid species of Neotropical freshwater fishes, and this figure may well reach 6,025. The orders Characiformes and Siluriformes are dominant. Britski (1972) emphasizes that the family Characidae is the most representative of freshwater fish in Brazil. For the state of São Paulo, Brazil, in small streams, Castro and Menezes (1998) list 261 freshwater fish species distributed in 25 families. In this case, the Order Siluriformes is dominant being followed by Characiformes. Many authors have surveying the Tietê river basin for fish (Godoy 1975; Caramaschi 1986; Castro and Arcifa 1987; Barrella 1989; Barrella and Petrere 1994; Barrela 1998; Smith 1999; Marciano 2001; Smith et al. 2003; Smith 2003). However the fish fauna of the Sorocaba River, the main left margin affluent of the Tietê River is poorly known. So the main objective of this paper is to provide a list of fish species for this important system.

## Materials and methods

Sorocaba river (180 km long) sub-basin (Figure 1) is located in the state of São Paulo, with a drainage area of 5,269 $km^2$ including 18 municipal districts (Smith 2003). It is formed by the rivers Sorocamirim and Sorocabuçu, and its main tributaries are the rivers Tatuí, Sarapuí, Pirajibu, and Ipanema.

The sampling program included 26 campaigns in 13 sites, during dry and rainy seasons. Captures were accomplished with two batteries of gillnets totaling 8 nets of 10 m length and 1.5 m high, with mesh sizes ranging as 3, 4, 5, 6, 7, 8, 10 and 12 cm opposite knots, sieves and *puçás*, which are a sort of funnel net. The fish were fixed in 10 % formalin and preserved in 70 % alcohol. In the lab they were identified using appropriate identification keys. Later species identification was kindly confirmed by Professor Heraldo Britski of the Museum of Zoology of the University of São Paulo. The inventory was complemented by information from Smith and Barrella (2000), Smith and Marciano (2000), Marciano (2001), Smith (2003), Villares Júnior and Goiten (2006), Smith and Petrere Jr. (2007).

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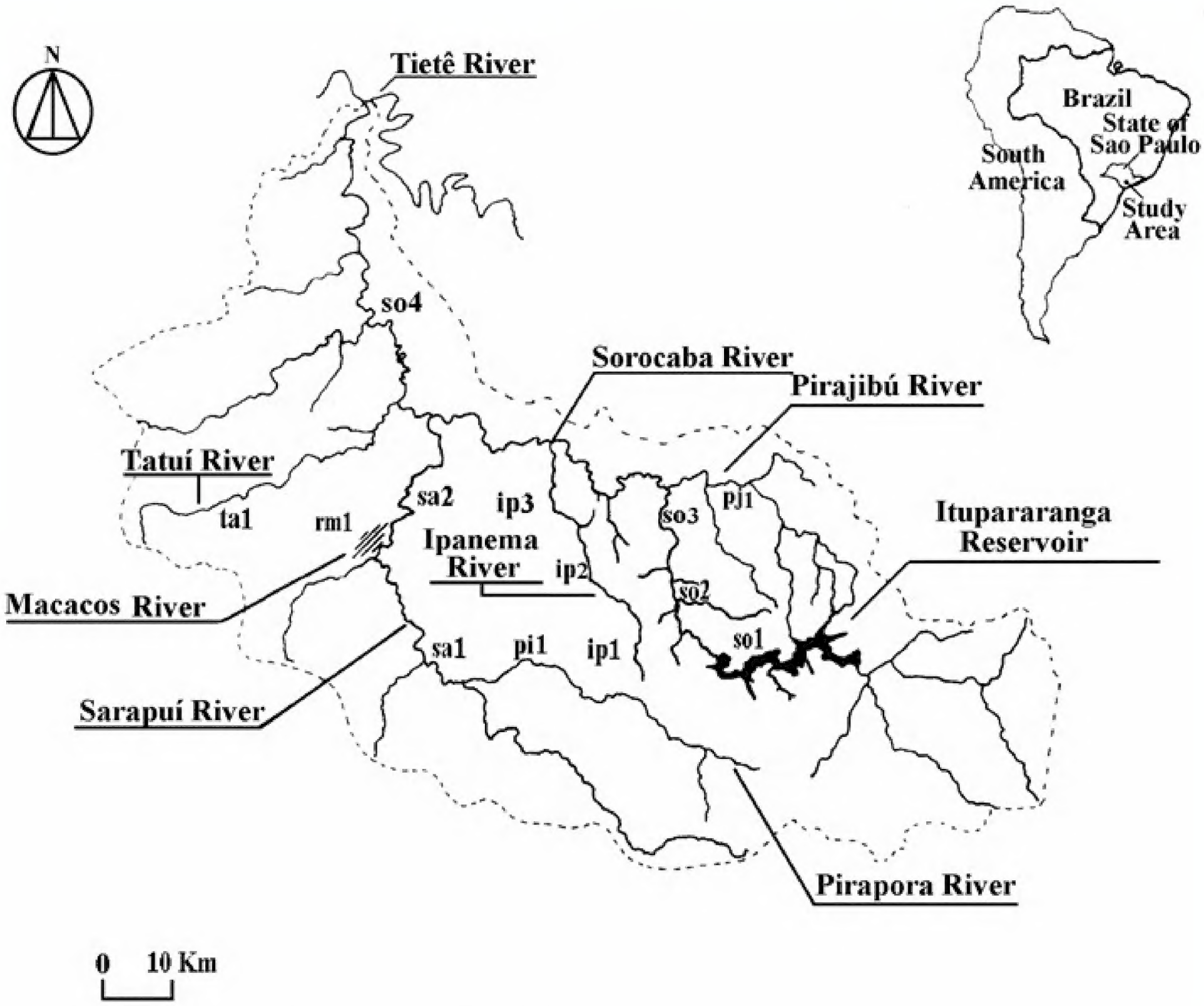


**Figure 1**. Sorocaba River basin and sampling sites.

**Results and discussion**

We identified 71 species distributed in 7 orders and 22 families (Table 1). Characiformes were represented by 39 species, 55 % of the total of collected species. They are followed by Siluriformes (21 spp; 29.6 %), Perciformes (4 spp; 5.6 %), Gymnotiformes (3 spp; 4.2 %), Cyprinodontiformes (2 spp; 2.8 %), and Synbranchiformes and Cipriniformes, with a single species each, corresponding to 1.4 % of the total of species. Our list does not agree with Castro and Menezes (1998), who says that Siluriformes and Characiformes are dominant in the state of São Paulo.

From the identified species, 93 % are native and 7 % are alien, from other basins inside the country (*Piaractus mesopotamicus* and *Triportheus signatus*) or even from other continents (*Tilapia rendalli, Oreochromis niloticus*, and *Cyprinus carpio)*. The number of introduced species may be even larger, due to the large number of put-and-take fisheries and fish farming in the sub-basin. New species may also being added to the sub-basin in a deliberate way in order to "improve" the sporting fishing.

## LISTS OF SPECIES

**Table 1**. List of fish species from the Sorocaba river basin. Alien species was labeled with an asterisk.

| Order/Family | Species |
|---|---|
| **Characiformes** | |
| Characidae | *Astyanax fasciatus* |
| | *Astyanax altiparanae* |
| | *Astyanax* sp. |
| | *Astyanax eigenmaniorum* |
| | *Astyanax scabripinnis* |
| | *Hemigrammus marginatus* |
| | *Hyphessobrycon eques* |
| | *Bryconamericus stramineus* |
| | *Odontostilbe stenodon* |
| | *Serrapinnus notomelas* |
| | *Oligosarcus paranensis* |
| | *Oligosarcus pintoi* |
| | *Galeocharax knerii* |
| | *Serrasalmus maculatus* |
| | *Salminus hilarii* |
| | *Triportheus signatus** |
| | *Metynnis* sp. |
| | *Piaractus mesopotamicus** |
| | *Brycon orbignyanus* |
| Acestrorhynchidae | *Acestrorhynchus lacustris* |
| Crenuchidae | *Characidium fasciatum* |
| Erythrinidae | *Hoplias malabaricus* |
| Prochilodontidae | *Prochilodus lineatus* |
| | *Prochilodus* cf. *vimboides* |
| Curimatidae | *Steindachnerina insculpta* |
| | *Cyphocharax modestus* |
| | *Cyphocharax nagelli* |
| Anostomidae | *Leporinus obtusidens* |
| | *Leporinus striatus* |
| | *Leporinus friderici* |
| | *Leporinus lacustris* |
| | *Leporinus macrocephalus* |
| | *Leporinus octofasciatus* |
| | *Leporinus elongatus* |
| Parodontidae | *Schizodon nasutus* |
| | *Parodon tortuosus* |
| | *Parodon nasus* |
| | *Apareiodon piracicabae* |
| | *Apareiodon* cf.. *affinis* |
| **Cypriniformes** | |
| Ciprinidae | *Cyprinus carpio** |

## LISTS OF SPECIES

**Table 1**. Continuation.

| | |
|---|---|
| **Siluriformes** | |
| Callichthyidae | *Corydoras aeneus* |
| | *Callichtys callichtys* |
| | *Hoplosternum litoralle* |
| Heptapteridae | *Imparfinis mirini* |
| | *Pimelodella vittata* |
| | *Pimelodella* sp. |
| Pseudopimelodidae | *Microglanis* sp. |
| Pimelodidae | *Pimelodus maculatus* |
| | *Iheringichthys labrosus* |
| | *Rhamdia quelen* |
| Pseudopimelodidae | *Pseudopimelodus* cf. *mangurus* |
| Doradidae | *Rhinodoras* cf. *dorbignyi* |
| Trichomycteridae | *Trichomycterus* sp. |
| Loricariidae | *Hisonotus depressicauda* |
| | *Hypostomus* sp A |
| | *Hypostomus* sp B |
| | *Hypostomus* sp C |
| | *Hypostomus margaritifer* |
| | *Hypostomus ancistroides* |
| | *Rineloricaria* sp A |
| | *Rineloricaria* cf. *latirostris* |
| **Gymnotiformes** | |
| Gymnotidae | *Gymnotus carapo* |
| Sternopygidae | *Sternopygus macrurus* |
| | *Eigenmannia virescens* |
| **Perciformes** | |
| Cichlidae | *Australoheros facetus* |
| | *Geophagus brasiliensis* |
| | *Tilapia rendalli** |
| | *Oreochromis niloticus** |
| **Cyprinodontiformes** | |
| Poecilidae | *Phalloceros caudimaculatus* |
| | *Poecilia vivipara* |
| **Synbranchiformes** | |
| Synbranchidae | *Synbranchus marmoratus* |

The Sorocaba river sub-basin fish fauna show similarities with data obtained in other studies. The most representative family the in the sub-basin was Characidae. Matthews (1998) says that for temperate rivers there are several species per family while in tropical rivers there are several families, few species. This is confirmed in this study, where 22 families are listed, and some are represented by a single species, as observed in Serrasalmidae and Erythrinidae. Matthews (1998) also argues that the success of a family in tropical rivers is due to food availability and habitat diversity. When compared to other basins, our results really show that there are a high number of families in the sub-basin, especially if we take into consideration the limited number of studies in the Sorocaba river sub-basin.

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